

REMARKS:

- 1) Entry and consideration of the present Response After Final are respectfully requested. This Response is applicant's first opportunity to reply to the new grounds of rejection that were asserted for the first time in the Final Office Action. Thus, the present amendments and remarks could not have been submitted earlier during the prosecution. In the present amendment, independent claims 1 and 20 have merely been clarified to emphasize a pertinent feature of the invention in comparison to the new grounds of rejection, and a typographical error has been corrected in claim 24. Thus, the present Response does not raise any new issues but rather only directly addresses the issues that were raised in the Final Office Action. Therefore, entry and consideration of the present Response After Final are appropriate and are respectfully requested.
- 2) Claims 1 and 20 have been amended to emphasize the width-wise elastic deflection of the latch arms of the inventive receptacle connector. This feature is supported by the original disclosure (e.g. page 11 lines 18 to 20, page 13 lines 17 to 20, page 17 lines 1 to 20, etc.), and thus does not introduce any new matter. A typographical error has been corrected in claim 24, without introducing new matter. Entry and consideration of the claim amendments are respectfully requested.
- 3) Referring to pages 2 to 3 of the Office Action, the rejection of claims 1, 2, 13, 18, 20 and 21 as obvious over US Patent

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6,565,389 (Igarashi) in view of US Patent 6,663,407 (Pickles) is respectfully traversed.

- 4) As acknowledged by the Examiner, Igarashi does not disclose a combination of connectors including a latch arrangement as presently claimed.

In fact, while Igarashi discloses a combination of a receptacle connector and a plug connector for a flexible conductor cable or the like, Igarashi does not disclose any sort of latch structure for latching together the plug and the receptacle in a manner relating to the present invention. Igarashi does not disclose or suggest any need or motivation for providing such a latching structure including latch arms to latch together the receptacle and the plug in a manner relating to the present invention.

Thus, upon considering the disclosure of Igarashi, a person of ordinary skill in the art would have had no motivation to turn to other references (such as Pickles) that might disclose a latch structure with latch arms, because there would have been no apparent need or purpose for such a latch structure in connection with the plug and receptacle connectors according to Igarashi.

- 5) While the Examiner has turned to Pickles for an alleged motivation and suggestion to include a latch structure on the connector arrangement according to Igarashi, a person of ordinary skill in the art would not have been so motivated.

Pickles does not disclose any features of a connector arrangement including a receptacle connector and a plug connector

connected to a flexible conductor cable. To the contrary, Pickles discloses only a receptacle connector by itself, which is for direct connection with the contacts on the edge of a circuit card. The latch structure disclosed by Pickles only relates to the context of latching a circuit card to a card edge connector (see Pickles abstract, col. 1 lines 8 to 16, col. 2 lines 14 to 46, col. 3 lines 22 to 27, etc.). There would have been no suggestion by Pickles that such a latch structure for latching a circuit card would have had any purpose or function with regard to a combination of a receptacle connector with a plug connector connected to a flexible conductor cable.

Thus, Igarashi discloses nothing about a pertinent latch structure for a plug and receptacle connector arrangement, and Pickles only discloses a latch structure for latching a circuit card. Thus, even a combined reading of the references would have failed to suggest anything about a latch structure for latching a plug connector to a receptacle connector.

- 6) More importantly, even if the teachings of the references would have been viewed in combination as proposed by the Examiner (which is not motivated by the references for the above reasons), the present invention still would not have been suggested.

Present independent claim 1 defines a latch structure including a pair of latch arms that are adapted and constructed to undergo elastic deformation in the width direction of the receptacle connector. Each latch arm is provided with a retaining part that includes a guiding part which generates a force acting outward in the width direction so as to outwardly

elastically deflect each latch arm respectively due to a pressing force acting on the guiding part in the thickness direction. In this manner, the lateral outward elastic deflection of the latch arms (130) in the present inventive latch structure achieves the "snapping" engagement of the retaining parts into engaging cooperation with counterpart fitting faces of the plug connector. In this regard, see the present specification at page 16 line 15 to page 17 line 15.

Similarly, present independent claim 20 defines a latch structure including two latch arms that extend from the receptacle connector body and that are elastically flexibly deflectable in the width direction. The receptacle connector further includes a retaining part on a free end of each latch arm, whereby the retaining part includes a deflection guide part that generates a force acting outwardly in the width direction so as to outwardly elastically deflect each latch arm respectively when a pressing force is exerted onto the deflection guide part in the thickness direction. Thereby, as the plug connector is connected with the receptacle connector the latch arms are outwardly elastically deflected until the pressing portions move past and clear the deflection guide parts whereupon the plug connector becomes engaged with the receptacle connector.

Thus, in both present independent claims 1 and 20, it is critically important that the latch arms are outwardly elastically deflected so as to achieve the snap-engagement of the latch arm retaining parts with the counterpart engaging faces or fitting faces of the plug connector. The latch structure of Pickles does not include and would not have suggested such

features, and includes express teachings directly contrary thereto.

In the latch structure according to Pickles, the supporting arms (14) are NOT laterally deflectable in the width direction. and are expressly not intended to be deflected laterally outwardly. Rather, all of the necessary width-wise yielding deflection is provided by the curved portions (162) of the latches (16). This is clear from the disclosure of Pickles, as follows.

First, the supporting arms (14) are never disclosed as being laterally deflectable, and are not considered to be deflection arms but rather supporting arms. The supporting arms (14) have a rectangular cross-sectional shape arranged or oriented to lie flat on the horizontal width-wise plane. With such an orientation of a rectangular cross-section, it is apparent from bending moment considerations that the supporting arms (14) would not be deflectable in the horizontal width-wise direction, but rather, if anything, would be deflectable up-and-down in a height or thickness direction.

Second, Pickles expressly discloses that the curved portion (162) of the latch (16) provides the lateral or width-wise resilient deflection (see col. 3 lines 43 to 50 and col. 4 lines 20 to 22 and 30 to 37).

Third, the express purpose of Pickles is to prevent the lateral outward deflection of the support arms (14) so that the overall arrangement can be made narrower and so that adjacent connectors can be arranged laterally closer together (see col. 2 lines 44 to 46, col. 4 lines 30 to 37).

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Fourth, and most importantly, Pickles expressly discloses that these supporting arms (14) are rigidly fixed by soldering the engaging members (30) to the underlying motherboard on which the receptacle connector is arranged (see col. 3 line 60 to col. 4 line 3). Since the engaging member (30) is rigidly soldered to the underlying motherboard, it is completely impossible for the support arm (14) to deflect laterally in the width direction.

Thus, even if the latch structure for a circuit card according to Pickles would have somehow been modified and combined with the connector pair according to Igarashi, there still would have been NO suggestion toward the presently defined latch arms that are outwardly elastically deflected in the width direction to achieve the snapping engagement of the latch structure with the cooperating portion of the receptacle connector.

- 7) For the above reasons, the invention of present claims 1 and 20 respectively would not have been suggested by the combination of Igarashi and Pickles. The dependent claims recite additional features that further distinguish the invention over the prior art, for example as follows.

Regarding present claims 2, 13 and 18, Igarashi does not disclose anything about suitable engaging or fitting configurations on a receptacle connector body for interaction with a latch structure, because Igarashi does not disclose such a latch structure. On the other hand, Pickles discloses a latch structure, but only for cooperation directly with notches on a circuit card edge. Thus, Pickles also would not have suggested

anything about suitable fitting or engaging configurations on a receptacle connector for interacting with a latch structure, or anything about the structure of a receptacle connector.

Regarding present claim 21, while Igarashi discloses a receptacle connector connected to a flexible conductor cable, Igarashi does not include a latch structure. On the other hand, while Pickles includes a latch structure, that latch structure only relates to a circuit card, and has no relation to a connector for a flexible conductor cable.

- 8) For the above reasons, the Examiner is respectfully requested to withdraw the rejection of claims 1, 2, 13, 18, 20 and 21 as obvious over Igarashi in view of Pickles.
- 9) Referring to page 3 of the Office Action, the rejection of claims 4, 8, 12, 15, 16 and 22 to 24 as obvious over Igarashi and Pickles further in view of US Patent 6,565,383 (Wu) is respectfully traversed.

Claims 4, 8, 12, 15 and 16 depend from claim 1, which has been discussed above in comparison to Igarashi and Pickles. Claims 22 to 24 depend from claim 20, which has been discussed above in comparison to Igarashi and Pickles.

The Examiner acknowledges that Igarashi and Pickles fail to disclose or suggest the latch being metal and integral with a metallic cover of the receptacle connector. In this regard, the Examiner has turned to Wu.

However, Igarashi does not disclose anything about latch arms. On the other hand, Pickles expressly requires the latch

arms to be integrally molded of plastic together with the insulating housing (10) of the circuit card connector (see Pickles col. 3 lines 40 to 43). The insulative plastic construction is critical for the structure of Pickles, because a metal latch structure could cause short circuits of the circuit card (4) onto which the latches (16) are directly engaged. Thus, since the only latch structure and latch arms suggested by the combination of Igarashi and Pickles must necessarily be integrally molded of insulating plastic together with the insulating housing of the receptacle connector, a person of ordinary skill in the art would not have been motivated or enabled to make the latch arms of metal integral with a metallic cover.

While Wu discloses a locking member (16) clipped onto a connector, such a metallic cover does not include any integral metal latch arms pertinent or similar to the presently claimed inventive latch arm structure as discussed above. While Wu suggests that a general locking member for an electrical connector can be integrally made of metal, there is absolutely no relation to the specific structures of the present inventive arrangement as defined in present dependent claim 4 and/or dependent claim 15 respectively in connection with independent claim 1.

Regarding present claims 8 and 16, the Examiner has not addressed, and the three references do not disclose and would not have suggested, the provision of a plug width fitting face and a plug depth fitting face on a plug connector body, because Igarashi does not provide any latching arrangement, Pickles tells

us nothing about the configuration or other features of a plug connector body, and Wu also has nothing to do with such a latching engagement structure.

Regarding present claim 12, the Examiner has not addressed and the references do not disclose and would not have suggested the provision of concave parts or recesses at corners of the plug connector body. The Examiner has admitted that Igarashi and Pickles do not suggest such features (see rejection of claims 14 and 19), and Wu does not have anything to do with such features either.

Regarding present claim 22, the particular defined configuration of the retaining part is not disclosed and would not have been suggested by the references. Igarashi has nothing to do with such a latching structure. The latch (16) disclosed by Pickles has a different structure and is not formed of a bent metal member but rather a molded plastic member. The metal locking member according to Wu does not have any such retaining part structure.

Regarding present claim 24, the disclosure of Pickles regarding an integral molded plastic construction is directly contrary to the present invention, and not compatible or modifiable in view of the technical requirement of insulating plastic for latches according to Pickles in comparison to the general teachings of Wu to make a locking member (not relating to a latch structure) of metal.

For the above reasons, the Examiner is respectfully requested to withdraw the rejection of claims 4, 8, 12, 15, 16 and 22 to 24 as obvious over Igarashi and Pickles in view of Wu.

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- 10) Referring to pages 3 to 4 of the Office Action, the rejection of claims 14 and 19 as obvious over Igarashi and Pickles further in view of US Patent 6,361,358 (Kajinuma) is respectfully traversed.

Claims 14 and 19 depend from claim 1, which has been discussed above in comparison to Igarashi and Pickles. The Examiner has acknowledged that Igarashi and Pickles would not have suggested concave parts at corners of a plug connector. In this regard, the Examiner has turned to Kajinuma.

Contrary to the Examiner's assertions, Kajinuma does not disclose an insulating plug connector having concave parts at the corners of the plug connector, but rather discloses a structure for connecting the edge of a circuit board to another main board. Kajinuma discloses only a conductive supporting plate (150) mounted on the edge of a circuit board (190) to be engaged into a receptacle connector (20). The terminating structure (120) comprising the conductive supporting plate (150) does not correspond to or suggest the presently claimed plug connector.


The present invention involves an insulating plug connector body (recited in claims 13 and 18 from which claims 14 and 19 depend), and the concaved parts are provided at corners of this insulating plug connector body. To the contrary, Kajinuma provides only a conductive supporting plate or body (150) and does not disclose or suggest providing an insulating plug body. So even if portions of the electrically conductive plate are considered to be concave portions at the corners thereof, those concave portions are not provided on an insulating plug body.

For these reasons, the Examiner is respectfully requested to withdraw the rejection of claims 14 and 19 as obvious over Igarashi and Pickles further in view of Kajinuma.

- 11) Referring to page 4 of the Office Action, the rejection of claims 17 and 25 as obvious over Igarashi, Pickles and Wu further in view of Kajinuma is respectfully traversed. Claims 17 and 25 recite features relating to the concave portions or inverted corner recesses at the corners of the insulating plug body, as discussed above in comparison to the cited references. Thus, for the above reasons, even a combination of Igarashi, Pickles, Wu and Kajinuma would not have suggested these features. The Examiner is respectfully requested to withdraw the rejection of claims 17 and 25 as obvious over these references.
- 12) Favorable reconsideration and allowance of the application, including all present claims 1, 2, 4, 8 and 12 to 25, are respectfully requested.

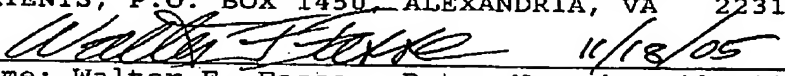
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Enclosures:
Term Extension Request
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